Space Weather Forecast

Issued on Thursday, 01 June 2023 at 01:20 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Occasional R1/R2 radio blackouts likely throughout. Slight chance of isolated Minor storm intervals.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate over the last 24 hours, with three Moderate class flares observed. The largest from AR3323 on the south-eastern limb at 31/2252UTC, and this region was also the source of the proceeding smaller Moderate class flares. There are currently 10 numbered and 1 un-numbered active region on the visible disk. There remains two complex regions in the southwest disc with continued development observed. An active sunspot continues to emerge around the eastern limb, displaying increased complexity as it come into clearer view. The remaining regions are all weak, fading or stable. No Earth-directed CMEs (coronal mass ejections) were observed on available imagery during the period.

Solar Wind / Geomagnetic Activity: Solar winds have been at ambient levels as the Earth transits through a region of background solar winds. Magnetic field strength has been weak, with the important north-south component also fluctuating weakly. Resultant geomagnetic activity was Quiet to Unsettled (2-3Kp).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to be Moderate, with a slight chance of High levels due mainly to the two complex regions in the southwest quadrant, and a newly numbered but increasingly active region on the southeast limb.

Solar Wind / Geomagnetic Activity: No Earth directed CMEs currently feature in the forecast. A fast solar wind is forecast to connect with Earth either late on Day 1 (1 Jun) or more likely on Day 2 (2 Jun), giving estimated solar winds of 500-600km/s. Geomagnetic activity is expected to be mainly Quiet to Unsettled. Active intervals likely with a slight chance of G1/Minor Storm intervals due to the likely connection with the fast solar wind.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to be at background levels with solar radiation storms unlikely to occur. However, there is a slight chance of reaching the Minor Storm threshold should any larger flares occur.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	20	10	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	60	60	60	60
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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